

FEATURE SECTION

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SECOND SECTION

Hovertoon blends best of two varieties of watercraft

Half pontoon boat, half hovercraft ... all engineering and creativity

By Paul Wiegel

If you're out enjoying the Fox River on any weekend in the summer, you're bound to see a wide variety of watercraft.

Whether you're walking along Riverside Park's boardwalk or actually out on the water, you could see the slow movement of paddles from people in canoes and kayaks, fishing boats working along the shore, or pontoon boats out for an enjoyable evening cruise.

"I JUST STARTED CRUNCHING NUMBERS AND CAME UP WITH A MODEL AND THEN STARTED LOOKING FOR SURPLUS PARTS."

—DICK SCHRAMER

What you might not expect, or might not even know existed, is a half pontoon boat, half hovercraft that could come right up out of the water and then "float" across the shore.

This creation is called the Hovertoon by creator Dick Schramer, and you'd be lucky — and amazed — to see this prototype watercraft as it moves up and down the Fox River near the shores of his home.

What started as a concept back in 2008 has now become a reality. He's been tinkering with the idea for over a decade now, and the former software engineer sees a lot of potential for his invention.

Schramer is a boat enthusiast and member of the Berlin Boat Club, but the Hovertoon is something that goes beyond simply enjoying a day out on the water. To put a vessel like this together requires both an understanding of boats and the knowhow



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THE HOVERTOON PROTOTYPE rests in Dick Schramer's yard. The combination hovercraft and pontoon boat is seen here with the skirts deflated and the pontoons at angles on the side.



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RUSS KUEHN MANEUVERS the Hovertoon in preparation for a short journey on the Fox River. Kuehn has helped Schramer in various stages of the project.



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MORE THAN JUST a pleasure cruising craft, the Hovertoon can approach 40 miles per hour. Schramer sees potential for the vessel as reaching both recreational markets and safety and rescue teams.

to build something from scratch. A firm understanding of engineering doesn't hurt either.

"I just started crunching numbers and came up with a model

and then started looking for surplus parts," said Schramer.

That search for parts ranged all over Wisconsin as the design developed.

"The motor is out of a 2007 Silverado I got for \$600. It's a 4.3 liter V6. It puts out about 195 horsepower," he said.

Some of the components are

a bit more specific to the water, though. For example, the pontoons themselves he purchased from a manufacturer for \$2,500. And while the console looks much like what you'd find on a regular pontoon boat, the display is modified with all the extra switches that are required.

If Schramer couldn't find what he needed, though, he simply made it.

"The first thing I did was the fans. I designed them on AutoCAD ... from there I had them laser cut off of my AutoCAD design," he said.

Russ Kuehn, a friend and fellow boater, has seen the entire process develop almost from the very beginning, watching the Hovertoon move from Schramer's basement workshop to his shed and then ultimately out onto the water.

Kuehn admits his role was largely behind the scenes and mostly involved looking on in amazement as the Hovertoon slowly became a reality based on Schramer's plans and creative fabrication of the needed parts.

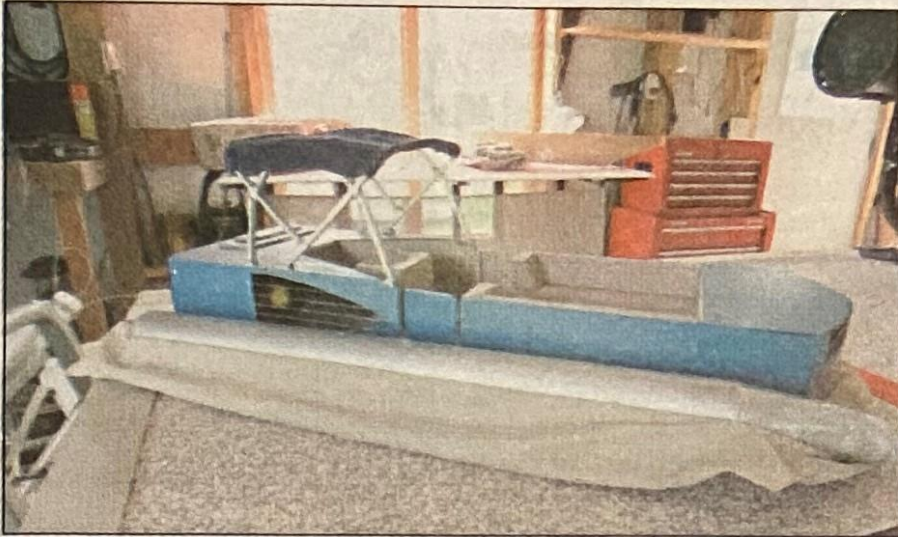
"What I credit Dick so much with is that he couldn't buy a lot, so he had to make it," he said. "Everything he's talking about originally was in the basement of his house. The first actual prototype was built there."

Both the prototype and the original test platform have somewhat of a Frankenstein quality to them, but it is easy to see that for Schramer, that was part of the fun and challenge of putting it all together.

"There's parts off of most of those lawn mowers," Kuehn added, pointing to three or four riding mowers parked off to the side of Schramer's shed.

Schramer was trained as an electrical engineer at Michigan Tech, but the Hovertoon seems to prove that to create something such as this requires not only a variety of engineering skills, but a certain inclination to break a few rules and think of workarounds to problems.

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THE FIRST MODEL of the Hovertoon was a scale model, remote-controlled version that Schramer could drive on a table top.

Hovertoon

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“At Michigan Tech, they put you through a pretty well-rounded engineering background,” he said.

He seems to acknowledge, though, that there’s more to invention than training.

“I grew up on a farm too. You learn to make things work,” he said.

Although having the skill set to build something like this from the ground, or water up, depending on how you look at it, can put things on the right track, there were still problems along the way.

“The first time I took the test platform out on its own power, I parked it in a bush. I learned not to point it downhill,” he said.

Schramer and Kuehn talk about the first time they took the Hovertoon out over water as almost an act of faith, but by that point Schramer had gone over the

design so many times, he was confident things would go well.

Anyone who has attempted to bring the skills of driving a bicycle or automobile to the water knows that you need a different attitude to navigate a boat. A body of water is not a slab of concrete. Add in about a foot of forced air between you and what’s underneath you, and you’ve got to make even more mental adjustments.

“It’s a little like driving a hockey puck,” Schramer said.

“You give it thrust in one direction, that’s where it’s going to push you, and if you take thrust away, you’re just going to continue to float. There’s a little bit more drag, but you have to have a little more weight in front so that the back end swings easier.”

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Hovertoon

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Schramer talks about how you can turn the craft completely around and then use the thrust as a brake.

Although it takes getting used to, Kuehn pointed out that the craft is very maneuverable, citing the fact that the Hovertoon has taken multiple trips up and down the Fox River without any issues.

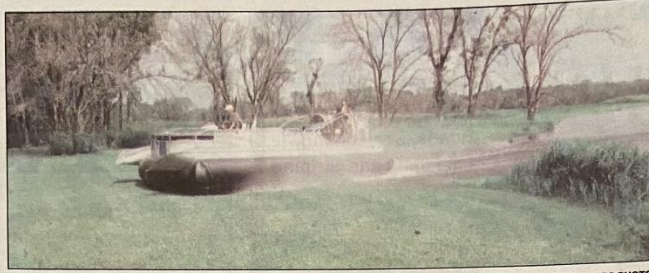
Schramer estimates the overall weight of his prototype Hovertoon at 3,700 pounds.

That current weight is a long way from his original remote-controlled design that he was able to maneuver along a table top. But like all inventions, Schramer had to start somewhere, and through all the modifications since that original model, he's learned that adjustment is just part of the process.

The overall design has gone through a number of modifications over time, including an extra fan rudder in back to provide more control, changes to the console, as well as all the other tweaks and adjustments he's had to make along the way.

He's even added some practical applications, such as ice fishing holes.

The most interesting part of the



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ABOVE: SCHRAMER'S HOVERTOON transitions seamlessly between water and land. AT RIGHT: THIS PROTOTYPE of a lift fan held by Schramer was the basis for the final models that ended up in the craft.



design is the rotating pontoons. When the Hovertoon isn't functioning as a pontoon boat, the pontoons rotate out and up, actually moving out from underneath the vessel and off to the side, to allow the skirt to come down and change Schramer's creation into a hovercraft.

According to Schramer, this action provides 50 percent more surface area for the hovercraft.

The rotating pontoons are the key to the design, allowing it to be both kinds of watercraft. Schramer's prototype model won't do that yet, but it is part of the patent.

"I just wanted to make sure everything functioned as a hovercraft first," he said, "Once that proved

out I got it patented because I couldn't find anything like it. The rotating pontoons ... nobody's ever done that before," he said.

Schramer also holds a couple of patents from his software engineering days.

Schramer also sees more practical applications for his Hovertoon, including its ability to work in rescue situations on big bodies of water, particularly in the winter.

"For the rescue aspect of it ... you can go over open water and then back onto ice, and not just take one at a time back. Probably load four or five of them up onto it and take them all back," he said

referring to those who may be stranded on the ice.

Schramer continues to work on the design and develop all the final modifications to complete the vision he had back in 2008.

For now, though, it's enough to treat it as both a work in progress and a recreational watercraft that glides seamlessly along both the Fox River and his backyard.

Someday he hopes that the Hovertoon will see more than the waterways in Berlin.

"The next step would be to find a pontoon boat manufacturer that wants to build them. It's probably 90 percent pontoon boat," he said.

While that might be technical-

ly true, the other 10 percent is something that is hard to put your finger on.

To ride in a Hovertoon is not the same as what most would think of as going for a pontoon boat ride. It floats, true, but when it drives right up onto the shore, and the water beneath it turns to grass without any kind of bump or change in speed, you don't really think of it as a pontoon boat.

You're not exactly reaching for your old fashioned while you chat with some friends about your Sunday plans.

It's part thrill ride, part physics lesson. And it certainly is a whole lot of fun.